

REMARKS

The foregoing amendment amends claims 16, 19, 20 and 22, adds claims 24-37 and cancels claims 1-15 and 23. Pending in the application are claims 16-22 and 24-37, of which claims 16, 19, 20, 22 and 37 are independent. The following comments address all stated grounds for rejection and place the presently pending claims, as identified above, in condition for allowance.

Claims 16, 19, 20 and 22 are amended to clarify that a cell sorting device is used to isolate selected cells. Claims 19, 20 and 22 are amended to correct a misspelling of the word "microfluidic". Claim 20 is amended to correct a misspelling of the word "subpopulation".

Claims 24-37 are added to more fully capture the instant invention and recite subject matter originally found in canceled claims 1-15 and 23. *No new matter is added.*

Amendment and/or cancellation of the claims is not to be construed as an acquiescence to any of the objections/rejections set forth in the instant Office Action, and was done solely to expedite prosecution of the application. Applicant reserves the right to pursue the claims as originally filed, or similar claims, in this or one or more subsequent patent applications.

Claim Rejections Under 35 USC § 103

In the Office Action, the Examiner rejects claims 16-22 under 35 U.S.C. §103(a) as being unpatentable over either Diessel et al. (5,837,200) or Olek et al. (6,214,566) or Edwards et al. (6,455,280). According to the Examiner, each of the cited references meets all the limitations of the claims, but lacks the intended uses, transplantation, genetic modification, etc. The Examiner considers that it would be obvious to modify either Diessel, or Olek or Edwards to provide/substitute the intended uses in order to increase system applicability. Applicants respectfully traverse the rejection and submit that the pending claims distinguish patentably over the cited references.

In rendering his conclusion that the claims are obvious, the Examiner points to paragraph 31 of Edwards, which describes methods of genotyping a biological sample by determining the

identity of an allele at an GSSP-2-related biallelic marker. However, the Edwards reference does not disclose *sorting* of particles based on phenotype or a cell cycle stage specific marker, as recited in claims 16-22. The Edwards reference also does not disclose use of a microfluidic cell sorting device to isolate cells, as recited in claims 16-22.

The Examiner further points to the abstract of the Olek reference, which describes a method of characterizing, classifying and differentiating tissues and cell types, for predicting the behavior of tissues and groups of cells, and for identifying genes with changed expression. The Olek reference also does not disclose sorting of particles based on phenotype or a cell cycle stage specific marker. The Olek reference does not mention sorting at all, in particular, sorting using a microfluidic cell sorting device, as recited in claims 16-22.

The Diessel reference discloses a sorting device that sorts particles based on magnetic marking, but also fails to disclose sorting of particles based on phenotype or a cell cycle stage specific marker. Therefore even in combination, the references fail to disclose the claimed invention.

The cited references, alone or in combination, do not teach or suggest the claimed method of sorting, set forth in claims 16-22 and claims 24-37. Moreover, the Examiner has failed to establish a *prima facie* case of obviousness, because he has not pointed to any motivation to combine and/or modify the teachings of the cited references to render the conclusion that the claims are obvious, as required under 35 U.S.C. §103. Therefore, the rejection based on 35 U.S.C. §103 is improper and should be withdrawn.

Applicants respectfully submit that motivation to modify the teachings of the cited references is lacking. Under U.S. law, even if a combination of the references teaches every element of the claimed invention, without a motivation to combine, a rejection based on a *prima facie* case of obvious is improper.

In determining whether a case of *prima facie* obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification. The prior art must provide the

motivation to make a change to its own teachings to arrive at the invention under rejection. That is, it is not sufficient that the prior *could be* so modified; instead the prior art must teach or suggest that the prior art *should be* so modified.

It is well-established law that the motivation to modify the teachings of a reference or to combine references must come from the references themselves, and cannot be derived from the teachings of the application under examination. However, none of the cited references, alone or in combination, teaches or suggests the claimed invention, or provide any motivation for modification or combination of their teachings. Therefore, the claims are patentable over the cited references and in immediate condition for allowance.

New Claims

New claims 24-37 have been added to more fully claim the instant invention, and are also patentable over the cited references. As described above, the cited references, alone or in combination, do not teach or suggest sorting of particles using a sorting device based on phenotype or a cell cycle stage specific marker. Therefore, claims 24-36, which depend from independent claims 16, 19, 20 or 22 and independent claim 37, which recites that particles are sorted based on phenotype, are also in immediate condition for allowance.

Moreover, the cited references do not disclose a method that includes sorting and screening and/or modification of sorted cells on the same microfluidic device, as set forth in claims 24-25, 31 and 34.

The cited references also fail to disclose the particular means of sorting using a pressure pulse, as set forth in claims 26-27, 29-30, 32-33 and 35-37.

The cited references also fail to disclose removing isolated cells from a microfluidic cell sorting device and transplanting the isolated cells, as set forth in claim 28.

For at least these reasons, pending claims 16-22 and 24-37 distinguish patentably over the cited references. As such, Applicants request reconsideration and withdrawal of the instant rejections.

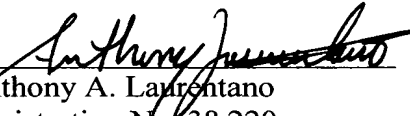
CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If, however, the Examiner considers that obstacles to allowance of these claims persist, we invite a telephone call to Applicant's representative.

Applicants believe no fee is due with this Amendment. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. TGZ-021CP2 from which the undersigned is authorized to draw.

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Respectfully submitted,

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